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(54) METHOD AND APPARATUS FOR LASER BEAM MACHINING SURFACE OF METAL

(57)Abstract:

PURPOSE: To give beautiful reflecting gloss of iridescent color, etc., as the whole or a part pattern, etc., by irradiating an intermediate radiation of laser beam metal surface and forming fine ruggedness, corresponding to intensity distribution of interference pattern generated on the irradiated surface on the metal surface.

CONSTITUTION: The interference pattern in the irradiating spot is constituted of fine hundreds of bright and dark bands, the mutual interval of which is near wavelength range of light in the visible region, such as about  $1\mu\text{m}$  or less. By scanning at one time so as to relatively displace the irradiating position of the interference radiation of the beam B3 and B4 in the X direction or the Y direction along the metal surface, plural rugged bands are formed at once on the metal surface. In such a way, the metal surface obtd. by repeating the

scanning, closely exists the fine ruggedness. By this method, incident light is spectrally reflected and the reflecting gloss having the iridescent colorful tone and being variously varied by watching angle and incident light direction can be obtained.

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